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Discussion 1E

CS 31 Project 1

For project 1, our assignment was to take an original pet survey program and create separate files for the varying types of errors programmers can experience while coding. A runtime error is an error that the programmer can make that outputs the wrong result, but the program can still run fluidly. For my logic error, I switched the preferCats and preferDogs integers when the percentages are calculated so that the percentage of people whom prefer dogs and cats are incorrect. A compiler error is an error in the code where the program fails to compile or build. For my compiler error, I removed the semicolon from the initialization of int preferCats;, so that the statement is never finished and the file cannot compile, build, or run.

While running the original file (original.cpp), I tested a variety of input cases. The first case, the number of people who prefer cats (4) and dogs (6) totaled to the total number of participants (10), and the correct percentages were displayed and totaled 100% (40% cat 60% dog). The second case I tested, the total number of participants (10) was less than the sum of participants who preferred cats (5) and dogs (3). The percentages were correctly displayed even though they did not total 100% (50% cat and 30% dog). The third case I tested, the number of participants (10) was less than the total sum of people whom preferred cats (6) and dogs (8). The percentages also displayed correctly (80% dogs 60% cats) despite the illogical numbers tested. The fourth case tested inputted the number of participants as zero, with the number of people preferring cats (6) and dogs (6) as logical numbers. The program output inf% for both cats and dogs, therefore being the first case where the program fails. And lastly, I tested the original program with a negative number of participants (-10), and positive numbers of people preferring cats (3) and dogs (7). The program output the correct percentages, only negative (-70% dogs -30% cats).

While running the file with the runtime error (logic\_error.cpp), all of the cases as above returned the same outputs, except the percentages outputted were incorrect and flipped, where the correct percentage for dogs was displayed for cats and vice versa. The final message reporting whether there were more dog people than cat people still remains correct, however. An example would be the first tested case for the original file. The number of participants was 10, and the reported number of people preferring cats was 4 and preferring dogs 6. The output displays cats at 60% and dogs at 40%, instead of the other way around. The output still correctly reported there were more dogs than cats.

While trying to run the file with the compiler error (compile\_error.cpp), the program would fail to build or run because of the compiler error - a missing semicolon.